Patient's Guide to
Shoulder Replacement Surgery

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For their contribution to the development of this patient education guide.

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I. UNDERSTANDING SHOULDER REPLACEMENT

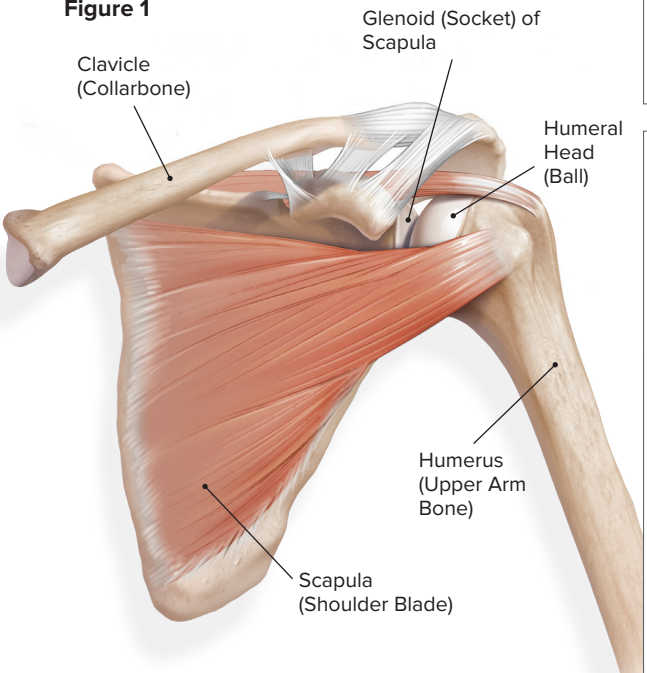
Shoulder replacement surgery has been recommended for the treatment of your shoulder problem. This operation is usually performed for arthritis or fractures of the shoulder, but other conditions involving the shoulder can also be successfully treated with shoulder replacement surgery.

The purpose of this booklet is to give you information about the surgery, as well as answer the most common questions patients typically ask. This handout provides information on your surgery, your hospital stay, as well as your return home. Please contact your doctor's office with any questions or concerns.

The Normal Shoulder

The shoulder is very complex and involves three bones and more than one joint. These bones are the clavicle (collar bone), the scapula (shoulder blade), and the humerus (upper arm bone). The upper end of the arm bone (humerus) and the outside edge of the scapula bone (glenoid) form a "ball-and-socket joint". There are numerous muscles, ligaments and tendons, which also comprise the shoulder, and which help to provide stability and movement (Figure 1). This joint is remarkable because it typically allows greater range of motion than any other joint in your body (Figures 2 and 3).

Figure 1



Left Shoulder - View From Front

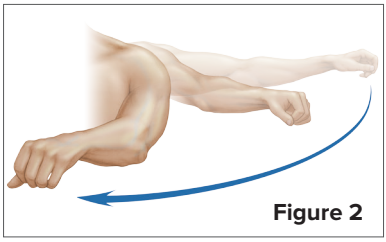


Figure 2

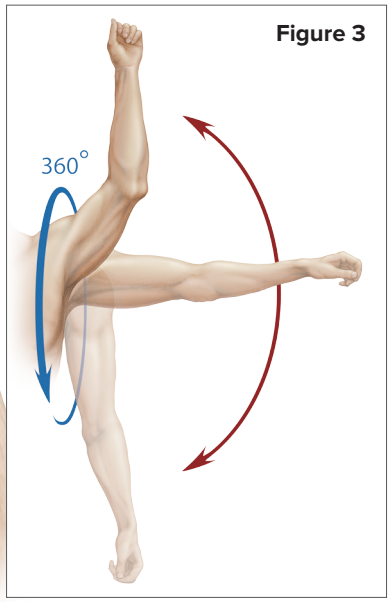


Figure 3

Who Needs Total Shoulder Replacement Surgery?

Total shoulder replacement surgery is often suggested if there is degeneration of the ball-and-socket joint. When the smooth surfaces (cartilage) of the ball and socket become rough, they rub against each other rather than glide. This rubbing causes pain, stiffness and swelling. Most patients who decide to have shoulder replacement surgery have experienced shoulder pain for a long time. Many patients have developed pain that limits their daily activities, and may interfere with their ability to sleep. Shoulder stiffness may also interfere with the use of their arm for everyday activities. A shoulder replacement is performed to alleviate shoulder pain, and often helps to improve the range of motion of your shoulder joint.

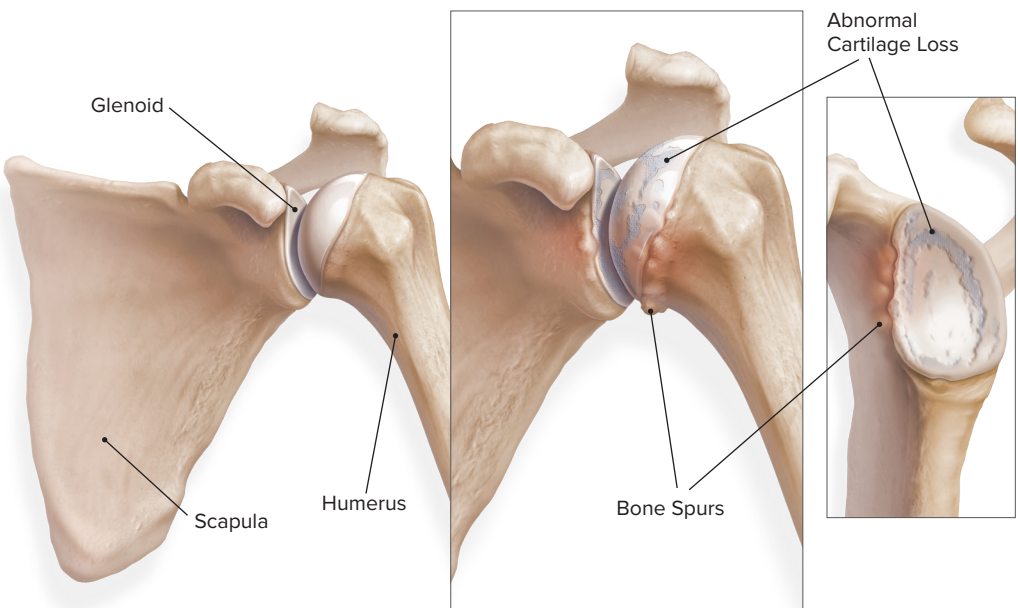
The two most common reasons for shoulder replacement are:

- Severe degenerative joint disease (osteoarthritis) – The cartilage has worn away resulting in bone-on-bone contact (Figure 4). When the smooth surfaces of the head of the humerus (ball) and glenoid (socket) become rough, they rub against each other rather than glide.
- Fractures involving the shoulder joint.

Other reasons for shoulder replacements include:

- Inflammatory or rheumatoid arthritis – Cartilage is destroyed by the inflammation commonly found in these joint diseases.
- Avascular necrosis – "Bone death" caused by loss of the blood supply to the humeral head (ball).

Figure 4



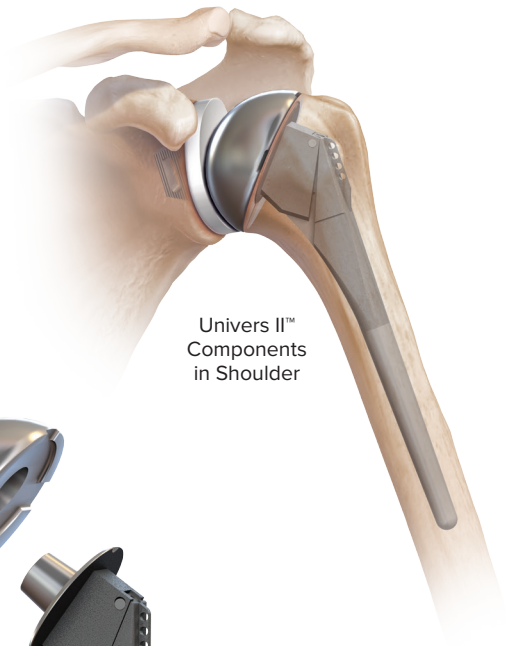
The Surgery

The essential part of the surgery is to remove the damaged area and replace it with a shoulder prosthesis (artificial joint). In order to get to the shoulder joint, an incision is made on the front of your shoulder. After exposing the shoulder joint, the damaged ends of the humerus and glenoid bones are removed. The bone is then prepared to accept the components of the artificial joint.

Univers Apex™ Components in Shoulder

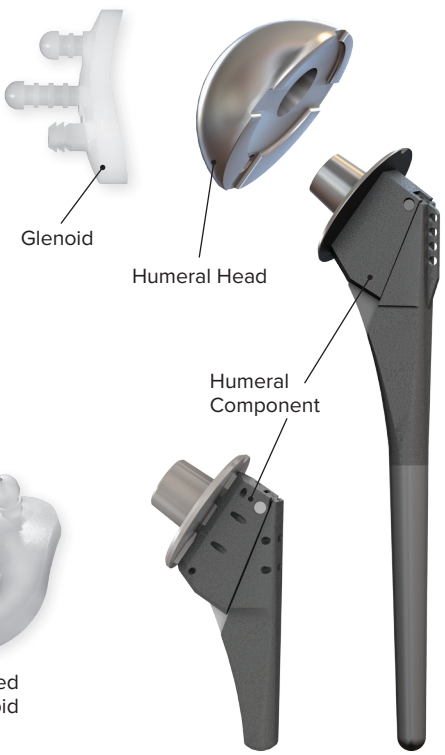
The artificial joint is made of metal, usually a titanium or a cobalt-chrome alloy. The stem is placed inside the humerus bone. Bone cement may be used to secure the stem within the humerus.

The glenoid component is made of a special plastic (polyethylene). The glenoid is cemented into place. Not all patients require a glenoid component and the final decision to use a glenoid component is made during the surgery by the surgeon.



Univers II™ Components in Shoulder

After the components are in place, the shoulder joint is checked to make sure it is stable and has the potential for good motion after rehabilitation.



Keeled Glenoid

Pegged Glenoid

Who Needs Reverse Shoulder Replacement Surgery?

Reverse total shoulder replacement surgery is an option when the rotator cuff muscles surrounding the shoulder are not functioning properly, usually due to a chronic tear in one or more of the tendons that is not able to be surgically repaired. This can also lead to degeneration of the ball-and-socket joint resulting in arthritis. Combined, a disorder called Rotator Cuff Arthropathy, can lead to chronic pain and shoudler dysfunction ("Pseusdoparalysis"). Most patients who decide to have reverse shoulder replacement surgery have experienced shoulder pain for a long time. Many patients have developed pain and dysfunction that limits their daily activities, as well as interferes with their sleep. Shoulder stiffness also interferes with the use of their arm for everyday activities.

Reverse shoulder replacement surgery is designed to alleviate most of the shoulder pain and restore function. It often helps to improve the range of motion of your shoulder joint, which may improve your function and the quality of your life.

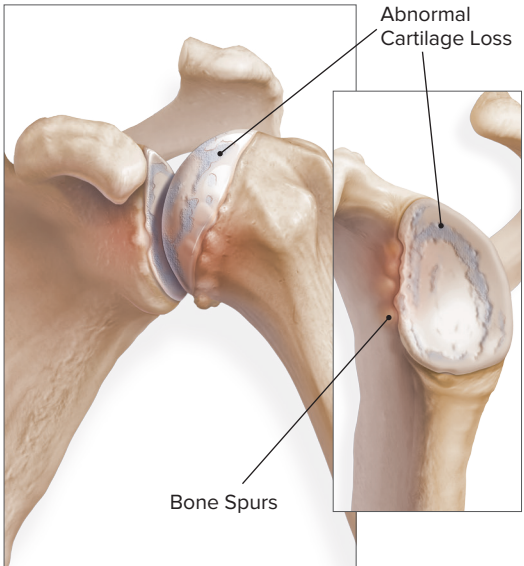
The most common reasons for reverse shoulder replacement surgery are:

- Chronic tear of the rotator cuff tendons that is not able to be surgically repaired or have failed prior repair
- Rotator Cuff Arthropathy (chronic rotator cuff tear with associated arthritis)

Other reasons for reverse shoulder replacement surgery:

- Complicated (3 and 4 fragment) proximal humerus fractures
- Poor healing (malunion, non-union) of proximal humerus fractures previously repaired
- "Bone death" (i.e. Avascular Necrosis) after proximal humerus fracture
- Tumor or other related bone-loss pathologies

Rotator Cuff Tear

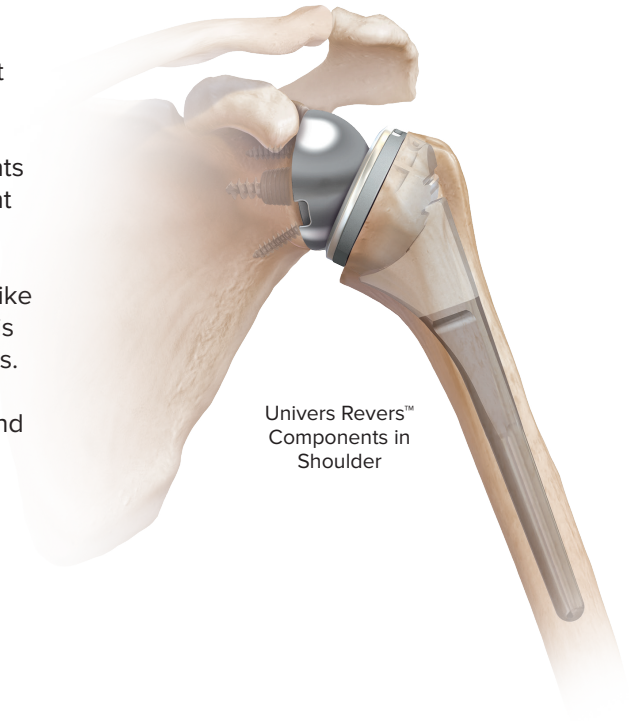


Degenerated Shoulder Joint

The Surgery

For a reverse shoulder replacement procedure, most of the surgery will follow the same steps outlined previously. However, the components of the reverse shoulder replacement are shaped differently.

The glenoid component is shaped like a ball (called the glenosphere) and is anchored to the scapula with screws. The humeral component is now the socket that attaches to the upper end of the humerus.



Univers Revers™ Components in Shoulder

II. PREPARING FOR YOUR JOINT REPLACEMENT SURGERY

Now That You Are Scheduled For Surgery

The following information should be discussed between you and your surgeon in preparation for your surgery. Please discuss all preoperative questions or concerns with your surgeon.

- Preoperative education about the surgical procedure
- Surgical risks
- Preparation for surgery
- What to bring to the hospital
- Discharge planning
- Home preparation for after surgery

Your doctor's office will provide you with the information to schedule the required tests, which may include:

- Blood tests
- Urinalysis
- EKG and chest x-ray
- History and physical from an internist

Please discuss all current medication usage with your surgeon.

Preparing for Your Hospital Admission

Typically you will be admitted to the hospital on the morning of your surgery. This is called a "same-day admission." Insurance companies generally do not allow admission to the hospital the day before your procedure. Patients are asked to arrive at least two hours before the actual time of the surgery. In most cases, your surgeon's office will notify you of the exact time that you are to report to the hospital registration area on the day of surgery. In some cases, the surgical scheduling office may provide this information one or two days prior to your surgery date. Please make every effort possible to arrive on time, as a starting time for your surgery has been reserved.

You should expect to be discharged on the second or third day after your surgery. Some patients are able to go home the day after surgery. Patients are typically discharged to their home without the need for an extended-care facility. With your help, your surgeon will make every effort possible to anticipate your needs and provide you with the appropriate support services. If you feel that you will not be able to return back home because of the anticipated limited use of your arm, please notify your surgeon and his staff prior to surgery.

Preparing for Your Surgical Procedure

If there is any change in your physical condition, such as a fever, flu, diarrhea, skin rash or cold, please call your personal physician and your surgeon's staff as soon as possible.

Patients who do not speak English should have someone accompany them to the hospital who can translate their language to English.

Pack a bag or a small suitcase with the items you may need during your hospital stay. Please bring along your own toiletries and any necessary personal items. While in the hospital you may choose to wear a hospital gown or you may bring your own clothing from home. Loose comfortable clothing or a shirt, which buttons in front and that can easily be placed over your shoulder, is recommended. During therapy, you will need to wear clothing that will allow your arm to move comfortably without being restricted. Furthermore, you will need to wear shoes that are comfortable and safe. Generally, open-heeled shoes or slippers are not recommended.

Do not bring valuables with you to the hospital. Leave all money, jewelry (including wedding rings) and credit cards at home.

Please bring a form of photo identification (e.g. driver's license) and insurance cards to present to the registration and admitting department. If your insurance carrier requires that you submit a claim form at the time of admission, please remember to bring a completed claim form with you. Be sure to keep all cards and forms in a safe place in your hospital room.

Eyeglasses, contact lenses, hearing aids and dentures must be removed prior to your surgery. Please bring a container to protect these items.

The Night Before Your Surgery

Bathe or shower the night before or the morning of your surgery. Your surgeon may require you to use a special wash that is available without a prescription to help prevent infection.

Day of surgery instructions will be handled by the hospital or surgery center.

Recovery Room

After your surgery, you will be placed on a hospital bed and taken to the post-anesthesia care unit (PACU/ “Recovery Room”). Your vital signs (heart rate, blood pressure, temperature and breathing), IV, shoulder dressing and level of comfort will be checked frequently. You may be asked to move your fingers, wrist and elbow to test the motor function of your hand. The circulation and sensation of your arm may also be checked by the medical staff.

Your arm will be in a sling or arm immobilizer and supported on a pillow. Once you are awake and your vital signs are stable, you will be discharged from the post-anesthesia care unit and brought to your hospital room. Most patients spend two to three hours in the recovery room for close observation after shoulder replacement surgery. Your family members should be aware that after they leave you, it may take a number of hours before they will be contacted by your surgeon to discuss the results of your surgery.

Please be aware that surgery and recovery protocol may vary and any questions pertaining to the surgical procedure or postoperative protocol should be discussed with your surgeon.

Questions and Answers About Anesthesia

Who are anesthesiologists?
Anesthesiologists are physicians who care for patients and provide pain management during and following surgery. During a major operation, anesthesiologists choose from a variety of medications to fulfill many different functions, such as stopping pain, making the patient unconscious, and relaxing the body's muscles. To do this they may administer inhalation (gas) anesthetic agents, sedatives, muscle relaxants, and many other medications to help maintain normal body functions. The anesthesiologist carefully balances all of these medications in accordance with the individual medical and surgical needs of each patient.

What are my options for anesthesia?

There are two methods of providing anesthesia during your shoulder replacement surgery. The most common method is a general anesthetic agent. With general anesthesia, you are unconscious and have no awareness of the surgical procedure or other sensations. This is usually administered via a tube that is placed into the airway to your lungs. The second method is to use a regional anesthesia, which is performed by the anesthesiologist. Your anesthesiologist will inject medication near a cluster of nerves in the lower part of your neck on the same side as your surgery to numb the area of your body that requires surgery. Many patients undergo this operation with both a general anesthesia as well as a regional anesthesia. The regional anesthetic will provide you with pain relief throughout most of the day of your surgery. At some point you may be cared for by a nurse anesthetist. Nurse anesthetists specialize in the administration of anesthesia and will work closely with your anesthesiologist.

What happens immediately after surgery?
The anesthesiologist and your surgeon will continue to oversee your care in the recovery room. You may receive medications to decrease postoperative discomfort. Throughout your recovery, your condition and vital signs will be carefully monitored until it is determined that you are able to leave the recovery room.

What must I tell the anesthesiologist and all hospital staff?
Please inform the anesthesiologist and the nursing staff of any allergies or medications that have caused problems for you in the past. It is also important to discuss any problems that you may have had with anesthesia during a previous surgery. It is essential that you let your anesthesiologist and nursing staff know whether you have any allergies to antibiotics.

III. POSTOPERATIVE CARE

General Care

The postoperative regimen prescribed by your surgeon should be strictly followed to avoid adverse stresses applied to the implants. Detailed instructions on the use and limitations of your implanted devices should be discussed with your surgeon.

Respiratory Care
If you were given a general anesthesia during your surgery, your lungs might have become "lazy," causing congestion. Coughing and breathing exercises help to loosen the mucus in your lungs and prevent pneumonia. Keeping your lungs clear is very important.

Your nurse may instruct you on special breathing exercises or if necessary, you may receive respiratory therapy.

Circulation and Sensation
Increasing the amount of fluid you drink and exercising your legs help prevent blood from becoming "sluggish" in your blood vessels. Beginning prior to the surgical procedure and for the first 24 hours following your surgery, sequential compression stockings may be applied to your legs to help prevent blood clots from forming in your legs. Once you are up and walking around consistently, the compression stockings can be discontinued per your physician's instructions.

If a regional block was used as part of your anesthesia, it will take 12-18 hours for you to recover full sensation and active control of the muscle groups in the operative arm.

Diet
Following the surgery you will begin on a light, perhaps liquid, diet to help avoid stomach upset. The doctors and staff will attempt to return you back to your regular diet as quickly as possible.

Exercise
During the first day of your surgery, it is not unusual to feel weak, light headed and drowsy. Within 24 hours, these effects will wear off and you will be able to gradually increase your activity level. Your surgeon and nursing staff will determine what your activity level should be, keeping in mind that increasing your activity level may help to promote good circulation and may decrease the risks of developing blood clots.

Bowel Management
Some patients become constipated because of pain medications as well as being inactive. Your surgeon and nursing staff can discuss ways to help avoid this problem. If necessary, you may be given a laxative or stool softener.

Physical Therapy
On the day after surgery, a physical/occupational therapist may work with you to plan your therapy program. While you are in the hospital, the physical therapist may work with you one to two times per day.

Occupational Therapy
Some patients have other orthopedic problems or medical problems that make their postoperative mobility and personal care more difficult. This is particularly true for patients who have an inflammatory arthritis where multiple joints, especially their hands, can be affected. An occupational therapist may be asked to evaluate your needs and challenges. Occupational therapists provide services including education regarding modified personal care, assistive devices and strategies for increased mobility and independence.

Pain Control

Pain control can help you enjoy greater comfort while you heal. With less pain you may be able to start walking, perform breathing exercises and possibly get your strength back more quickly.

During your surgery, your pain will be controlled through a general anesthesia and often through a regional nerve block.

After surgery, various pain control methods may be prescribed by your surgeon. Some surgeons may prescribe a patient-controlled analgesia (PCA) method to help control pain. With PCA, you control when you receive the medication and how much medication is necessary to relieve your pain. As soon as you begin to feel pain, you press a button and the medication will be delivered to you through the intravenous (IV) tube in your vein. Typically on the morning of the first day after your surgery, the PCA will be discontinued and you will be given a pill to control your pain. Additionally, intramuscular injections of pain medications may be used. However, pain control methods vary depending on surgeon. Please consult your physician for all options available for pain control.

Ice may also be applied to your shoulder and can help to decrease your discomfort. Please consult your physician before making any decisions related to pain control treatment.

Tips For Controlling Pain After Surgery
Discuss your pain control with your surgeon and nurse. There are many effective ways to control postoperative pain, especially if it increases your comfort with physical therapy sessions.

Help the doctors and nurses “measure” your pain. You may be asked to rate it on a scale of 0-10, where 10 is the worst pain possible and 0 is no pain at all. This will help them understand your level of discomfort. If you let your pain increase significantly, without notifying your medical team, it may become difficult to quickly relieve it.

Antibiotics
You will be given antibiotics postoperatively as a routine precaution for your surgery. Remember, please inform the nursing staff and your surgeon of any allergies to antibiotics.

IV. PREPARING FOR HOME

Home Health Care

The need for home health care will be decided between you and your surgeon. It is important that your surgeon understands your level of independence, your general health status, and how much help you have at home. Many patients can get assistance from other family members, which will help ease the transition upon their return back home. Patients who live alone and do not have available transportation are more likely to be candidates for home care. Not all insurance companies allow for home health care or home physical therapy. Check with your insurance company to determine if these services are covered by your policy. If your surgeon decides that you are an appropriate candidate for home care, a nurse and a physical therapist will come to your home to assist you. Home health care should be coordinated with the assistance of the hospital discharge planner and the home health care service while you are in the hospital.

Outpatient Physical Therapy

Eventually, you may be able to attend outpatient therapy or continue your exercise program at home on your own. You will be given a prescription for physical therapy when you leave the hospital or during an initial post-op visit by your surgeon.

To receive supervised physical therapy outside your home, you must be able to travel to a facility that offers these services. It may be recommended that you avoid driving for the first six weeks following your surgery. Outpatient physical therapy centers may be located within a hospital setting, or may be free standing clinics. Your surgeon and staff will make every effort to recommend an appropriate facility that is within a reasonable distance from your home or one that provides transportation. You may be expected to attend supervised therapy sessions two to three times a week. Eventually, you will learn your exercise program and be able to continue with your exercises at home without supervision. Please consult your physician for instructions regarding physical therapy.

General Information

Discharge Planning
You are going home! Planning for your discharge from the hospital begins before you enter the hospital. Your doctor and his/her staff will try to anticipate your needs as you gradually return back to your independent daily life. The hospital staff is committed to providing quality care to patients and will make every attempt possible to provide you with a pleasant experience.

Restrictions/Precautions
Ask your surgeon what your restrictions are following shoulder replacement. Your surgeon will provide you with detailed instructions and limitations of the device and will prescribe a postoperative regimen, to which you should strictly adhere. Keep in mind that there may be limitations to daily activities such as exercising, bathing, sexual activity and driving for a certain period of time.

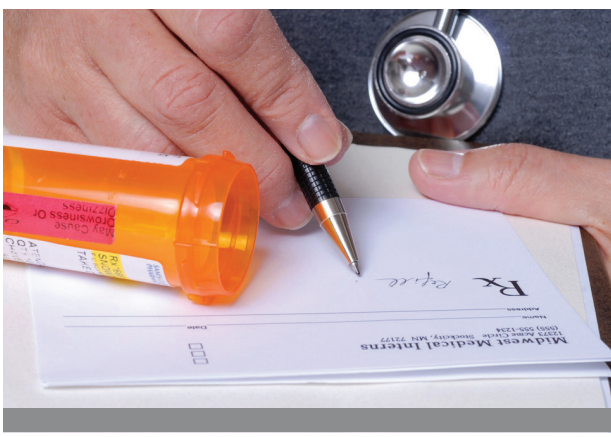
Although you should progress with some light exercise, as prescribed by your surgeon, do not force any shoulder motions such as internal rotation or backwards extension for up to six weeks. Most importantly, do not let anyone (family members, etc.) force your arm into uncomfortable positions.

During the initial six week postoperative period, do not use your arm to pull and/or push yourself out of bed or out of a chair for six weeks.

It is necessary to wear a sling or arm immobilizer for six weeks to protect your shoulder from any unexpected movements unless indicated otherwise by your surgeon. Wearing the sling also alerts others around you to be cautious and avoid accidentally striking your arm. Your surgeon will notify you when you can discontinue the use of the sling and until such time, the sling should only be removed for monitored therapeutic exercises and bathing.

Returning to Work
Returning to work depends on the demands of your work responsibilities and therefore should be discussed thoroughly with your surgeon.

Medications
You will be provided with a prescription for pain medication. If you have problems with your medication or you run out of medication, please call your surgeon's office. In general, it is difficult to provide narcotic medication refill on evenings or weekends. Please plan ahead and request these medications during normal office hours.



Prevention of Infection

Incision Care

Your dressing will be changed during your hospital stay. After you are at home you may change the dressing as needed, but after the first week you do not need to continue to dress the wound unless directed otherwise by your surgeon. Someone, either a family member or your home health nurse, should look at your incision with you every day to check for any signs of infection. Signs may include redness, swelling, increased pain, drainage, or warmth. Contact your surgeon's office immediately if you develop any of these symptoms.

Keep the incision clean and dry until you see your surgeon in the office. Do not scratch, cleanse or apply any creams, lotions or other treatments to the incision until you have seen your surgeon in the office. If you choose to shower, please cover the incision with a water-resistant covering, such as a plastic bag, to prevent the incision from getting wet. Typically your sutures will be removed in the office seven to ten days after your surgical procedure.

Please call your surgeon's office if:

- You develop a fever greater than 100.4 degrees Fahrenheit
- Drainage continues from the site of your incision
- Your shoulder becomes more swollen, tender and painful with increased difficulty performing your exercises

If you develop severe pain, chest pain or difficulty breathing, call 911 or report immediately to your local emergency room.

Annual Checkup

Your surgeon may choose to reevaluate you and your shoulder replacement on an annual basis to reexamine your shoulder, check your range of motion and strength, as well as obtain new radiographs (X-rays) to look at the relationship between the shoulder prosthesis (replacement) and the bones. Follow-up examinations are important to provide you with important information regarding your shoulder replacement and to monitor your recovery.

Follow-up Visits

Seven-to-ten day evaluation:

- X-rays
- Check the site of surgery
- Sutures are removed
- Review exercise program progress
- Evaluate comfort level

Six week evaluation:

- Check the site of surgery
- Check range of motion
- Review ability to begin a strengthening program
- Evaluate ability to perform activities of daily living and personal care
- Discuss return-to-work responsibilities

Twelve week (three month) evaluation:

- X-rays
- Check range of motion
- Review strengthening program progress
- Evaluate activities of daily living and personal care progress
- Discuss return-to-work responsibilities

Optional: _____

_____

_____

Questions for your surgeon: _____

_____

_____

_____

Surgeon's Name _____

Surgeon's Telephone Number/Address _____

_____

_____

Hospital _____

Date/Time of Surgery _____

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